Appendix F

Operating and Emergency Procedures

Name of Licensee_____

Operating Procedures

Training

Prior to handling and operating fixed gauges , authorized users will complete either a eight hour training course by the manufacturer of the device or agency approved course.

Personnel Dosimetry

- If personnel dosimetry is provided:

  - Always wear your assigned thermoluminescent dosimeter (TLD) or film badge whenever handing, transporting or operating a nuclear gauge.
  - Never wear another person's TLD or film badge.
  - Personnel dosimetry will be worn at the chest or waist level. Badges will not be worn during non-occupational radiation exposures (e.g. medical or dental x-rays, etc.)
  - Never store your TLD or film badge near the gauge.
  - The RSP will be immediately notified if personnel dosimetry is lost or damaged.

Availability of Procedures

- A complete and current copy of the operating and emergency procedures must be posted or if posting procedures is not practicable, a notice which briefly describes the procedures and states where they may be examined may be posed instead.

- Copies of the manufacturer's operation manual are maintained on file by the RSO for ready reference.

ALARA Philosopy

- All personnel involved with fixed gauges will commit to practice the ALARA philosophy – keep radiation exposure As Low As Reasonably Achievable. The objective is to reduce occupational and public exposures as far below regulatory limits as possible by means of good work practices.
- The following methods will be used to reduce dose:
  - Minimize the **TIME** spent in close proximity to the gauge (the shorter the time, the lower the dose). Work quickly. Return the gauge to storage when not needed.
  - Maximize the **DISTANCE** from the gauge (do not get closer than necessary.) Transport the gauge away from the driver.
  - Make use of available **SHIELDING** to reduce radiation

Security

- Post a radiation warning sign at each entryway to an area where it is possible to be exposed to the beam.

- Develop lock out procedures to prevent employees from entering the radiation beam during maintenance, repairs, or work in , on, or around the bin, tank, or hopper on which the device is mounted. These procedures should specify who will be responsible for ensuring that the lock-out procedures are followed. **Attach a copy of these "lock-out" procedures**.

- Always keep unauthorized persons away from the gauge.

- Prevent unauthorized access, removal, or use of the gauge.

- Reevaluate compliance with public dose limits and ensure proper security of gauges, after making changes affecting the gauge (e.g., changing the location of gauges, removing shielding, adding gauges, changing the occupancy of adjacent area,).

Transportation

- The fixed gauges will be transported per DOT regulations, which require specific labeling and surveying of the packages before transport. Refer to "Transportation" in "Material Guidance for Fixed Gauges Licenses" for additional transportation information.

Refer to Appendix Q – "Major DOT Regulations; Sample Shipping Documents, Placecards, Labels and Sample Bill of Lading" of Regulatory Guide 3.13 Radioactive, "Material Guidance for Fixed Gauges Licenses" for additional transportation information.

General Rules of Use

- Use the gauge according to the manufacturer's instructions and recommendations.

- Do not touch the unshielded source rod with your fingers, hands, or any part of your body.

- Do not place hands, fingers, feet, or other body parts in the radiation field from an unshielded source.

- Test each gauge for proper operation of the on-off mechanism (shutter) and indicator, if any, at intervals not to exceed 6 months or as specified in the SSD certificate.

- Reevaluate compliance with public dose limits and ensure proper security of gauges, after making changes affecting the gauge (e.g., changing the location of gauges, removing shielding, adding gauges, changing the occupancy of adjacent areas, moving the storage area to a new location), reevaluate compliance with public dose limits and ensure proper security of gauge.

Routine Maintenance

- Perform routine cleaning and maintenance according to the manufacturer's instructions and recommendations. A copy of the appropriate manufacturer's operation manual will be on hand and the maintenance instructions will be strictly followed.

- Non-routine maintenance or repair that requires the removal of the source is prohibited. Such operations will only be performed by the manufacturer or other specifically authorized persons.

Radiation Surveys

If damage is suspected, immediately notify the RSO, who will make arrangements to have the gauge surveyed as soon as possible. Refer to the emergency procedures for further instructions.

Emergency Procedures

In the event of a stolen, lost or missing gauge, authorized users will immediately notify the Radiation Safety Office (RSO), who will contact the Agency.

If the gauge becomes damaged or if any other emergency or unusual situation arises:

- Stop use of the gauge.

- Immediately secure the area and keep people away from the gauge until the situation is assessed and radiation levels are known. However, perform first aid for any injured individuals and remove them from the area only when medically safe to do so.

- If any equipment is involved, isolate the equipment until it is determined there is no contamination present.

- Gauge users and other potentially contaminated individuals should not leave the scene until emergency assistance arrives.

- Notify the persons in the listed below of the situation:

  ***Radiation Safety Officer:**_____
  ***RSO Phone No.: (w)**_____**(H)**_____

  Nebraska Health and Human Services Regulation and Licensure
  Radioactive Materials Program (402)471-2168 (Monday-Friday 8AM – 5PM)
  Off Hours: State Patrol (402) 471-4545 (Ask to speak to the NEMA Duty Officer as you have an incident to report involving radioactive materials.)

  *Fill in with (and update, as needed) the names and telephone numbers.

- Follow the directions provided by the person contacted above.

If damage should occur during transport:
At the earliest practical moment, the U.S. Dept. of Transportation will be notified of an accident that occurs during the course of transport in which fire, breakage, spillage or suspected contamination occurs involving shipment of radioactive materials, in accordance with 49 CFR 171.15. U.S. Department of Transportation Notification No: (800)424-8802

RSO AND LICENSEE MANAGEMENT:

- Arrange for a radiation survey to be conducted as soon as possible by a knowledgeable person using appropriate radiation detection instrumentation. This person could be a licensee employee using a survey meter located at the jobsite or a consultant. To accurately assess the radiation danger, it is essential that the person performing the survey be competent in the use of the survey meter.

- Make necessary notifications to local authorities as well as the Agency as required. (Even if not required to do so, you may report ANY incident to Agency at (402) 471-2168 Agency notification is required when gauges containing radioactive material are lost or stolen, when gauges are damaged or involved in incidents that result in doses in excess of 180 NAC 4-055 limits.

- Reports to the Agency must be made within the reporting timeframes specified by the regulations.

  Reporting requirements are found in 180 NAC 4-052 through 054 and 180 NAC 3-026.

  Note: Copies of operating and emergency procedures must be posted at each location of use or if posting procedures is not practicable, a notice which briefly describes the procedures and states where they may be examined may be posted instead.

  Copies of operating and emergency procedures should be provided to all gauge users.

Fixed Gauge Emergency Response Information

POTENTIAL HAZARDS

1) IMMEDIATE HAZARDS TO HEALTH

- External radiation hazard from unshielded radioactive material.
- Low-level radioactive material; little personal radiation hazard when shielded.
- Materials in special form are not expected to cause contamination in accidents.
- Some radioactive materials cannot be detected by commonly available instruments.
- Potential internal radiation hazard from inhalation, ingestion, or breaks in skin, only if special form capsule is breached.

2) FIRE OR EXPLOSION

- No risk of fire or explosion.
- Radioactivity does not change flammability or other properties of the materials.

EMERGENCY PROCEDURES

3) IMMEDIATE PRECAUTIONS

- Isolate hazard area and restrict access.
- Emergency response actions may be performed prior to any measurement of radiation; limit entry to shortest time possible.
- Notify local authorities and Nebraska's Health and Human Services Regulation and Licensure, Radiological Health Division of accident conditions.
- Detain uninjured persons, isolate equipment with suspected contamination, and delay cleanup until receiving instruction from Nebraska's Health and Human Services Regulation and Licensure, Radiological Health Division.

4) FIRE

- Do not move damaged containers; move undamaged containers out of fire zone.
- Small Fires: Dry Chemical, CO_2, water spray, or regular foam.
- Large Fires: Water spray, fog (flooding amounts).

5) SPILL OR LEAK

- Do not touch damaged containers or exposed contents.
- Damage to outer container may not affect primary inner container.
- Special form capsules are not expected to leak as a result of an accident or fire.

6) FIRST AID

- Use first aid treatment according to the nature of the injury.
- Advise medical personnel that victim may be contaminated with low-level radioactive material.
  Except for the injured, detain persons exposed to radioactive material until arrival or instruction of Nebraska's Health and Human Services Regulation and Licensure, Radioactive Materials Division.

CALL THE FOLLOWING FOR EMERGENCY ASSISTANCE:

RADIATION SAFETY OFFICER: _____

RSO TELEPHONE #:_____

Nebraska's HHS R & L, Radiological Health Division.....(402) 471-2168 (M-F 8AM to 5PM)

After hours- Nebraska State Patrol..... (402) 471-4545 (Ask to speak to the NEMA Duty Officer as you have an incident to report involving radioactive materials.)